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The Female of a Rare Dragonet (Teleostei: Callionymidae) from Japan with Comments on its Synonymy

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With Text-figures 1–3 and Table 1

Abstract A female specimen of the callionymid fish, *Spinicapitichthys draconis*, is described for the first time. The specimen is characterized by having a pair of cirri on the dorsoposterior surface of the eyes, a pair of bony tubercles on the occipital region, a preopercular spine with 5 processes on outer side and 4 processes on inner side, and a large first dorsal fin with a large black ocellus on the third membrane. *Callionymus* (*Spinicapitichthys*) *csiro* Fricke is shown to be a junior synonym of *S. draconis*.

Since the holotype of *Spinicapitichthys draconis* (Nakabo) was collected from off Kochi Prefecture, Japan, no specimen of the species has been collected. One of the authors, Ikeda, collected a female specimen of *S. draconis* at Sakai fishing port which had been caught by the trawler "Kaium-maru" at a depth of ca. 150 meters off Susami, Wakayama Prefecture, Japan. Because the female of *S. draconis* has not been recorded and not described, we here describe it. While examining some species related to *S. draconis*, we found that *Callionymus* (*Spinicapitichthys*) *csiro* Fricke is a junior synonym of *S. draconis*. We here discuss this, too.

Methods of counting and measuring follow Nakabo (1982). Counts, actual measurements and proportional measurements are shown in Table 1. Vertebrae were counted from soft-X-ray negatives.

Spinicapitichthys draconis (Nakabo)

(Japanese name: Tatsu-numeri)

(Figs 1–2)

Callionymus draconis Nakabo, 1977: 98–100, figs. 1–2 (type locality, off Kochi Prefecture, Japan).

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Callionymus (*Spinicapitichthys*) *draconis*: Fricke, 1980: 61 (listed); Fricke, 1982: 70 (listed); Fricke, 1983: 461–465, figs. 136–137 (redescribed from the holotype).

Spinicapitichthys draconis: Nakabo, 1982: 82 (listed); Nakabo, 1983: 247–248, fig. 25 (redescribed from the holotype).

Callionymus (*Spinicapitichthys*) *csiro* Fricke, 1983: 457–461, figs. 134–135 (type locality, 24°04'S, 112°52'E, Carnarvon, Western Australia).

Material examined. FAKU (Department of Fisheries, Faculty of Agriculture, Kyoto University) 57290, a female, 44.4 mm standard length, off Susami, Wakayama Prefecture, ca.150 m depth, coll. by H. Ikeda in catch of T.V. "Kaiun-maru", 14 Feb., 1990.

Comparative material examined. FAKU 48882 (holotype of *S. draconis*), a male, 93.8 mm, taken from Mimase market, Kochi Prefecture. WAM-P (Western Australian Museum, Perth) 11212 (holotype of *Callionymus csiro*), a male, 29.9 mm, 24°04'S, 112°52'E, Carnarvon, Western Australia, 75.5 fms. CSIRO St. 192, 8 Oct. 1963.

Description (a female specimen from off Wakayama Pref.). Body elongate and moderately depressed. Head moderately depressed. Snout shorter than eye. Eye large. Pair of cirri on dorsoposterior surfaces of eyes. Interorbital space narrow and concave. Occipital region narrow with pair of blunt, bony tubercles. Gill-opening oval, located behind origin of 1st dorsal fin. Preopercular spine almost straight, with 5 processes on outer side and 4 processes on inner side (Fig. 1B). Upper jaw protractile, its posterior end almost reaching anterior edge of eye. Pair of short, tubular nostrils a little before eye. Teeth on jaws villiform and in bands.

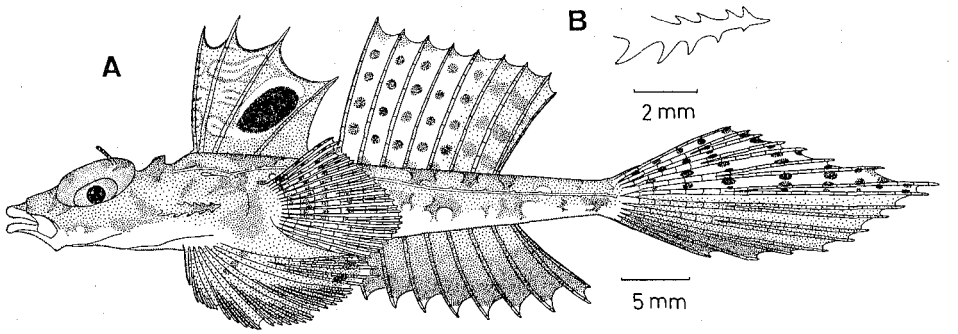

Fig. 1. Female of *Spinicapitichthys draconis* (Nakabo), FAKU 57290, 44.4 mm SL. A, lateral view. B, left preopercular spine.

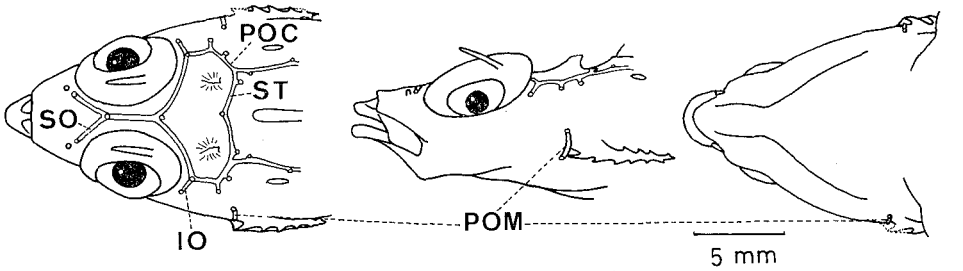

Fig. 2. Cephalic lateral line of *Spinicapitichthys draconis*, FAKU 57290. POC, postocular commissure; POM, preoperculomandibular canal; SO, supraorbital canal; ST, supratemporal canal.

Palatine and prevomer toothless. Anal papilla very short.

Cephalic lateral line system somewhat degenerated (Fig. 2); supraorbital canal simple, extending to just behind nasal pore; preorbital canal absent; infraorbital canal simple, reaching near posteromedian margin of eye; postocular commissure not connected with preoperculomandibular canal; preoperculomandibular canal very short, located near preopercular spine. Lateral line single, reaching distal end of median caudal ray; lines on each sides not connected across dorsal surface of caudal peduncle.

First dorsal fin large, beginning a little behind origin of pelvic fin; dorsal spines

Table 1. Counts and measurements for *Spinicapitichthys draconis*. Measurements are expressed in mm and percentages of the standard length are shown in parentheses.

Locality	off Wakayama Pref., Japan	off Kochi Pref., Japan	Carnarvon, W. Australia
Cat. no	FAKU 57290	FAKU 48884 (holotype)	WAM-P 11212 (holotype of *C. csiro*)
Sex	female	male	male
Standard length	44.4	93.8	29.9
Dorsal fin	IV–8	IV–7	IV-8
Anal fin	8	8	8
Pectoral fin	ii+19	ii+19	ii+19
Pelvic fin	I, 5	I, 5	I, 5
Caudal fin	i+7+ii	8+ii	i+7+ii
Vertebral number (AV+CV)	7+14	7+14	7+14
Body width	9.9 (22.3)	24.0 (25.6)	7.9 (26.4)
Body depth	7.2 (16.2)	16.1 (17.2)	5.0 (16.7)
Caudal peduncle depth	2.4 (5.4)	5.4 (5.8)	1.4 (4.7)
Predorsal length	14.0 (31.5)	27.6 (29.4)	10.1 (33.8)
Caudal fin length	23.6 (53.2)	88.2 (94.0)	16.0 (53.5)
Head length	15.2 (34.2)	31.4 (33.5)	10.6 (35.5)
Eye diameter	6.4 (14.4)	11.0 (11.7)	4.6 (15.4)
Snout length	4.8 (10.8)	12.5 (13.3)	3.2 (10.7)
Upper jaw length	4.4 (9.9)	9.6 (10.2)	3.2 (10.7)
Interorbital width	0.4 (0.9)	1.9 (2.0)	0.5 (1.7)
1st dorsal spine length	9.2 (20.7)	20.5 (21.9)	6.8 (22.7)
2nd dorsal spine length	10.3 (23.2)	22.9 (24.4)	6.8 (22.7)
3rd dorsal spine length	10.5 (23.6)	24.1 (25.7)	5.1 (17.1)
4th dorsal spine length	8.2 (18.5)	15.9 (17.0)	5.0 (16.7)
1st dorsal ray length	11.0 (24.8)	20.8 (22.2)	7.6 (25.4)
Last dorsal ray length	8.5 (19.1)	20.0 (21.3)	5.3 (17.7)
1st anal ray length	4.3 (9.7)	9.0 (9.6)	2.8 (9.4)
Last anal ray length	8.0 (18.0)	17.8 (19.0)	5.0 (16.7)
Pectoral fin length	9.6 (21.6)	21.8 (23.2)	6.8 (22.7)
Pelvic fin length	14.8 (33.3)	27.4 (29.2)	10.4 (34.8)
Preopercular spine length	5.0 (13.5)	7.5 (8.0)	—
Anal papilla length	0.2 (0.5)	3.0 (3.2)	0.3 (1.0)

not filamentous. Distal margin of 2nd dorsal fin almost straight; dorsal rays unbranched distally, last ray divided at base. Anal rays increasing in length posteriorly and unbranched distally; last ray divided at base. Upper half of pectoral fin truncate, lower half rounded; pectoral fin almost reaching 4th dorsal ray. Pelvic fin rounded and connected by membrane with middle of pectoral fin base. Caudal fin lanceolate.

Color in life. Body marbled dark brown above, whitish below. Upper and lower lips orange-yellow. Ventral surface of head and lower side of body before pectoral base bright red. First dorsal fin faintly darkened with some vermicular yellow marks on 1st and 2nd membrane, large black ocellus outlined in white on 3rd membrane, and distal margin of each membrane dark brown. Second dorsal fin with 4 series of dark marks on 1st-5th membranes, posterior part of fin faintly darkened with 3 ambiguous darker marks on 6th and 7th membranes and dark distal margin. Anal fin almost black with white distal margin. Upper half of pectoral fin with many small, dark spots, lower half transparent. Pelvic fin dark brown with some darker spots near base, 2 blackish-brown spots near posterior margin, and white distal margin. Upper half of caudal fin with 9 transverse series of small dark spots, lower half blackish-brown with white lower margin.

Color in 70% ethanol. Orange-yellow, red and yellow colors faded.

Remarks. The present female specimen can be identified as *S. draconis*, because it agrees well with the holotype of *S. draconis* in having the preopercular spines with several processes on both the outer and inner sides, a pair of supraorbital cirri, a pair of bony tubercles on the occipital region, a narrow occipital region, a large 1st dorsal fin and the coloration of the body and anal fin. The present female, however, differs from the male holotype in the shape of the occipital bony tubercle (blunt in the former vs. bifurcate in the latter), the coloration of the 1st dorsal fin (a large black ocellus on the 3rd membrane and a dark brown distal margin vs. one black bar on that membrane and the distal margin not dark brown), the coloration of the 2nd dorsal fin (4 series of dark spots vs. 3 or 4 series of yellow spots), and the coloration of the upper half of the caudal fin (9 series of dark spots vs. several series of yellow spots). The differences in the coloration of the dorsal and caudal fins are most likely due to sexual dimorphism. We suggest that the difference in shape of

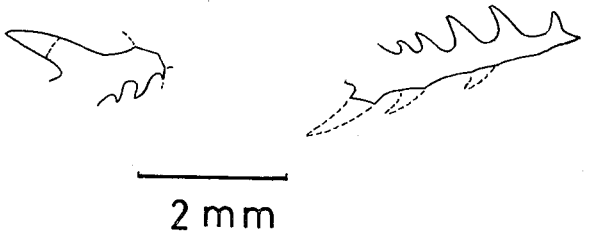

Fig. 3. Preopercular spines of the holotype of *Callionymus* (*Spinicapitichthys*) *csiro* Fricke, W-AM-P11212, 29.9 mm SL. Left, right one. Right, left one; processes shown by brokenlines are reconstructed at the damaged points.

the occipital bony tubercle is due to ontogenetic variation.

Callionymus (*Spinicapitichthys*) *csiro* Fricke (1983) from Western Australia is a junior synonym of *S. draconis*. It agrees well with our present specimen in almost all of its characters; the right and left preopercular spines of the holotype of *C. csiro* are somewhat damaged (Fig. 3), but the left one as reconstructed at the broken points agrees well with that of our female specimen of *S. draconis*. *C. csiro* differs from *S. draconis* only in having a more slender black ocellus on the 1st dorsal fin. Fricke (1983) recorded the sex of the holotype of *C. csiro* which is very small, 29.9 mm SL, as questionably female. As the result of our examination, it should be regarded as a young male because of the length of the anal papilla. In most callionymid species, females and young males are much alike in almost all characters. The difference in the shape of the black ocellus on the 1st dorsal fin between the two specimens is most likely due to sexual dimorphism shown in early developmental stage. *C. csiro* apparently, therefore, belongs to the same species as our female specimen of *S. draconis*.

Acknowledgments

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